Canada Mortgage and Housing Corporation
Société canadienne d'hypothèques et de logement

CMHC Helping to house Canadians

NEED FOR REPAIR:

AN EVALUATION OF ALTERNATIVE

QUESTION PHRASING

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and

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NEED FOR REPAIR: AN EVALUATION OF ALTERNATIVE QUESTION PHRASING
A SUMMARY

PURPOSE OF THE PROJECT:

The purpose of this research project was to evaluate the question phrasings used in the need for repair questions on the Census and Household Facilities and Equipment (HFE) surveys using a telephone-administered survey. Comparing the 1981 Census and the 1982 Household Facilities and Equipment survey reveals that the overall proportion of dwellings in need of some repair are similar but that there are major differences in the relative severity of the required repairs. There are important differences in the methodology used by the Census and HFE surveys, including differences in question phrasing. Specifically, this research evaluates the question phrasings to determine whether the wording differences of the two questions produce the observed differences in the reported need for repair.

The research concentrated on the examination of two issues: reliability and validity. First, do variations in question phrasing produce different proportions of dwelling units in need of major and minor repairs? This is a reliability question in the sense that it evaluates the extent to which two measurement techniques produce a common value. Second, do occupants accurately rate the condition of their dwellings? This is a validity question in the sense that it examines the accuracy of the occupant's self-assessment of their dwelling condition.

NATURE OF WORK UNDERTAKEN

This research project involved three data collection activities: two separate telephone surveys and the physical inspection of fifty units. The reliability of the Census and HFE questions was tested in two steps using telephone surveys and split ballot techniques. In the first survey, a "generic" question was designed and administered by telephone as a part of the Manitoba Omnibus to evaluate whether the response order alone produced differences in reported need for repair. The response order was an important difference between the 1981 Census and 1982 HFE questions on need for repair. This "generic" question was a hybrid of the Census and HFE questions and differed only in the order of the response categories (regular maintenance, minor, and major repairs) used in the telephone survey.

The specific questions used on the 1981 Census and the 1982 HFE were then administered in a second telephone survey to determine whether there are differences in response patterns in these two phrasings. Split ballot techniques were again used to compare the two phrasings.

To establish whether occupants accurately rate the condition of their dwelling unit, in both surveys those respondents who indicated the need for major or minor repair were asked to describe the nature of these repairs. The repairs described were recorded and re-coded into scales of repair severity to allow statistical evaluation. These scales were then compared to the occupant's rating to evaluate the extent to which their ratings and detailed description of the need for repairs matched.

The second approach to testing validity involved enrolling fifty respondents from the second telephone survey in an inspection of their dwelling units. Inspections were conducted by trained observers and their evaluations of the physical state of the unit were compared to the respondent's ratings.

CONCLUSIONS/RECOMMENDATIONS

With respect to the specific questions underlying this research project the following was found:

Reliability

When only response order is varied in the context of a generic question there is a statistically significant difference between a version which proceeds from major repair to regular maintenance and one which reverses this order. However, when questions are tested which more closely parallel the wordings used on the 1981 Census and the 1982 HFE surveys, these differences disappear. The reason for the difference in results may be that the questions in the second survey provide respondents with more guidance which outweighs the minor response order effect noted in the first testing using "generic" questions.

It was concluded therefore, that in the context of a telephone interview there is no difference in the response pattern produced by the 1981 Census question on needed repair and the 1982 HFE survey.

Validity

The research found a general correlation between the condition of the home as reported by the respondent and the repairs which they described as needed. This correlation is not surprising, but it is evident that there may be misclassifications. In general, respondents tended to misclassify upwards, in the sense that a home reported as needing "major repairs" only required minor repairs or routine maintenance according to the detailed description provided.

It was not possible to statistically evaluate the difference between question version, reported condition and the actual condition of the home due to sample size problems. However, the misclassification of dwelling conditions by respondents appeared to be greater when evaluated against the independent observations of trained inspectors with many respondents over-stating the actual need for repair.

Recommendation

Based upon the finding that the differences observed in the 1981 Census and 1982 HFE surveys with respect to the need for repair are most likely not due to question phrasing, the report recommended that to maintain consistency, the 1981 Census need for repair question be used on the 1991 Census.

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1.0 INTRODUCTION

1.1 Background

Assessing the condition of the housing stock is of considerable interest to the Canada Mortgage and Housing Corporation. One method for developing indicators of housing conditions in Canada has been to use survey research where occupants are asked to rate their dwellings. Two surveys commonly used in the assessment of housing conditions are the Census and the Household Facilities and Equipment Survey (HFE).

Based on the responses to these questions, CMHC produces estimates of the proportion of dwelling units requiring major or minor repairs. Comparing the 1981 Census and the 1982 HFE data reveals that the overall proportion of dwellings in need of some repair are similar, but that there are major differences in the relative severity of required repairs. Table 1 shows the differences obtained on these two surveys for Canada as a whole.

TABLE 1

NEED FOR REPAIR

CANADA

	(Percent)	
	1981 Census	1982 HFE
Major Repairs	6.7	12.9
Minor Repairs	17.0	14.9
	23.7	27.8

There are quite substantial differences in estimates of the proportion of dwelling units in need of major repairs from the 1981 Census and the 1982 HFE questions. Since these estimates are used to allocate housing program resources, it is important to refine the measures of housing stock condition. Evaluating the methodology of collecting need for repair data is the first step in this general review of housing condition measurement.

1.2 Purpose of the Research

This research investigates the method for collecting information on the need for repair. There are important differences in the methodology used by the Census and HFE surveys, including differences in question phrasing. Specifically, this research evaluates the question phrasings used on the Census and HFE surveys to determine whether the wording differences produce the observed discrepancies in reported need for repair.

This research concentrates on two issues. First, do variations in question phrasing produce different proportions of dwelling units in overall need for repair and for the proportion of dwelling units in need of major and minor repairs? This is a reliability question in the sense that we are evaluating the extent to which two measurement techniques produce a common value.

Second, we examine whether occupants accurately rate the condition of their dwellings. This is the validity question.

1.3 Outline of the Report

This report first reviews the method used on the Census and HFE surveys. This comparison identifies several potential sources for differences in the proportion of respondents reporting need for repairs with emphasis on the question wording. The next section details the method we used in this research. Our approach uses two surveys, one a survey of Manitobans, the other a survey of Winnipeg residents. In addition we directly inspected a small number of respondents' dwelling units to compare actual conditions with occupant ratings.

Next we report on the reliability of the two question phrasings used by the Census and HFE and present the results of the two surveys with respect to differences in proportions in the need for repair. We then examine the validity of ratings on dwelling condition. Our approach uses supplementary descriptions of needed repairs supplied by respondents to the survey (which we term "verbatim responses"), as well as the comparison of occupant ratings with those of qualified inspectors. The final section summarizes the key findings and implications of this research.

2.0 REVIEW OF THE METHOD TO ESTIMATE NEED FOR REPAIR

2.1 The 1981 Census and The 1982 HFE Surveys Compared

The 1981 Census and the 1982 HFE survey differ substantively. The 1981 Census included a need for repair question in the context of its "long-form" which is completed by 20% of all Canadians (selected at random). This long-form questionnaire is now common to all census surveys and is designed to provide additional information on respondents (income, assets, etc.). One important set of questions relates to housing in terms of facilities and condition. The need for repair question included in the 1981 Census is shown in Table 2 opposite. The main features of the Census is that it is self-administered and is mandatory for all Canadian residents to complete. Although certain populations are "missed" (e.g., transients), the Census is commonly believed to provide a highly accurate representation of the Canadian population.

The 1982 HFE survey (like all subsequent HFE surveys) was a module added to the Labour Force Survey (LFS). The LFS is a monthly survey conducted by Statistics Canada to measure various labour force characteristics. Additional modules are included in the survey to measure a variety of socio-economic characteristics of the population.

The 1982 HFE was administered to about 35,000 Canadian households and restricted to 2/3 of the LFS "panel."[1] The Labour Force Survey is a "sample" selected to represent the Canadian population. Unlike the Census, there is no statutory obligation for respondents to participate in the Labour Force Survey, and the overall response rate for the 1982 Labour Force Survey (May) was 89.5%. Therefore, issues of non-response error are more likely for the HFE survey than on the Census. Like the Census (long-form), the LFS uses a sample, and because this is not a simple random sample of the Canadian population, estimates of proportions of dwelling units needing repair must be "weighted" to represent the Canadian population.[2] About 50% of respondents to the 1982 LFS were

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1 The Labour Force Survey uses a rotating panel method in which respondents are enrolled into "rotation groups." The respondents are assigned to group 1 in month 1 and progress to higher groups in subsequent months. After six interviews (months) respondents are dropped from the panel are not eligible to be re-enrolled for a period of time. The design of the LFS is such that any combination of the rotation groups is a representative sub-sample of the Canadian population.

2 Because we use weighting in our survey analysis, a technical appendix has been included to explain this technique (Appendix A). It is also important to indicate that the sampling design for the LFS is much more complicated that the 20% simple random sample used in distributing the long form on the Census. This implies that the weighting schemes used to "recover" a representative sample for the LFS are more complicated that those required for the Census.

interviewed by phone (respondents in large urban areas) and 50% were interviewed in-person (respondents in small urban areas and rural locations). The question phrasing used on the 1982 HFE is also shown in Table 2 opposite the previous page.

2.2 Potential Sources for the Discrepancies Between the Census and the HFE Survey

There are several potential sources for the discrepancies shown in Table 1 on page 1.

Varying Question Phrasings

An obvious difference between the Census and HFE surveys is the question phrasing. The Census question is designed for self-completion. The response categories include modifiers to "ground" the intended meaning.[3] These additional modifiers would be read by most respondents at each response category. On the HFE version of the need for repair question, the interviewer first reads the responses (major, minor, regular maintenance), and then uses an additional explanation (which must be read). Also, the modifiers of major and minor repair categories are similar (but not identical) for both surveys with the HFE explanations tending to be longer and more descriptive. Another important difference is that the response order varies, with the Census moving from regular maintenance to major repairs and the HFE survey reversing the order.

It is well known that question phrasings are important to determining response patterns.[4] In addition, response order is a potential influence on the response pattern.

Varying Methodology

There are several methodological differences between the 1981 Census and the 1982 HFE.

- The 1981 Census was a self-completed survey while the 1982 HFE survey was interviewer administered either by telephone or in person. These differences in technique are important since the HFE survey had the potential for interviewer bias.

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[3] Grounding a question refers to using additional explanations to refine the intended meaning and limit opportunities for the respondent to supply individual interpretations.

[4] The term "response pattern" refers to the proportions reported in each response category. Evaluating the variation in these response patterns is the focus for this research.

- The Statistics Act forces compliance with the Census, whereas there is certainly non-random refusal bias with the HFE. This bias might be in a direction which could cause the HFE to overstate the true need for repair.

- The Census is a general data collection exercise, while HFE focuses on household facilities and equipment and tends to place the respondent in the context of considering their dwelling. The HFE questionnaire may, therefore, have encouraged more thought about the dwelling units prior to the point where the need for repair question was asked.

- There is almost a year between the 1981 Census and the 1982 HFE. The economic conditions declined sharply in 1982 and this may have influenced respondents' perceptions about the condition of the dwelling unit.

Different Populations/Respondents

As cited above, the Census and HFE samples are drawn in different ways. The HFE represents national housing conditions on the basis of a smaller sample than the Census (35,000 compared to several million for the long form of the Census). While the sampling procedures used in the Labour Force Survey are developed to represent the national population, there is a possibility that some biases exist. The extent of this source of disparity is difficult to ascertain.

Summary on the Potential Sources of Discrepancy

There are several potential influences to account for the differences in the results obtained on the two surveys. The most important explanations are differences in question phrasing including response order, the potential for interviewer bias on the HFE survey, and that HFE may focus the respondent, more than the Census, on the dwelling unit prior to asking the need for repair question.

3.0 METHODOLOGY

This research focuses on comparing the reliability and validity of these two questions. Do the two phrasings produce different response patterns, even when other methodological differences are controlled? How accurate are the ratings by occupants compared to the actual condition of the dwelling unit?

3.1 Reliability: Summary of Method

To evaluate whether the two question phrasings produce different response patterns requires that everything but the question phrasing is controlled.

Reliability was tested in two steps using telephone surveys and split ballot techniques.[5] A telephone survey unifies the basic method and focuses on the differences in phrasing alone. One potential limitation is that this does not evaluate how the question phrasings vary when different modes (mail, in-person and telephone interview) are used.

A "split-ballot" is a technique whereby half the sample is randomly allocated to one of two questionnaire versions. The questionnaires are identical except for the specific question being tested. It is very simple to evaluate whether the question phrasing produces differences by using statistical testing.

In the first survey, a "generic" question was designed and administered in a telephone interview to evaluate whether the response order alone produced differences in reported need for repair. The response order was an important difference between the 1981 Census and 1982 HFE questions on need for repair. This "generic" question was a hybrid of the Census and HFE questions and differs only in the order of response (regular maintenance, minor, and major repairs).

The specific questions used on the 1981 Census and the 1982 HFE were administered in a second telephone survey to determine whether there are differences in response patterns in these two phrasings. Split ballot techniques were again used to compare the two phrasings.

3.2 Validity: Summary of Method

To establish whether occupants accurately rate the condition of the dwelling unit requires that additional information be gathered. This was accomplished in two ways. First, in both surveys, those respondents who had indicated the need for major or minor repair were asked to describe the nature of these repairs. The repairs described were recorded and we accepted up to three such descriptions. These were recorded in detail (verbatim), and then re-coded into scales of repair "severity" to allow statistical evaluation. These scales were then compared to the rating

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5 This is sometimes also called "split-halves."

to evaluate the extent to which respondents' ratings and self-description matched.

Our second approach to testing validity involved enrolling fifty respondents from the second telephone survey in an inspection of the dwelling unit. Inspections were conducted by trained observers and their evaluations of the physical state of the unit were compared to the respondent's rating.

3.3 Detailed Review of Method

This research featured three data collection tasks - two separate telephone surveys and inspections of fifty dwelling units. Each data collection task is now reviewed in detail.

Manitoba Survey (Generic Question Test)

The purpose of this initial survey was to evaluate the effect of response order on the proportions of major and minor repairs reported by occupants. The survey also collected information which was used to assess the validity of the questions in terms of matching respondent ratings of the dwelling with descriptions of needed repairs.

As explained above, one major difference between the 1981 Census and the 1982 HFE was the order in which the categories of repair are presented to respondents. Two "generic" question versions were developed as a hybrid of the phrasings used on the Census and HFE surveys, with response order the only variation. The specific phrasing on these two versions were:

Version 1 (CENSUS)

"Not including remodelling, additions, conversions, or energy improvements, would you say your home is in need of regular maintenance, minor repair or major repair."
(DO NOT OFFER ANY DEFINITIONS)

Version 2 (HFE)

"Not including remodelling, additions, conversions, or energy improvements, would you say your home is in need of major repair, minor repair, or only regular maintenance."
(DO NOT OFFER ANY DEFINITIONS)[6]

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6 Statements in capitals are interviewer instructions and are not read over the phone. Prompts and clarifications were kept to a minimum when respondents requested assistance. The question was reread and if the respondent still failed to comprehend the interviewer moved on and that responses was coded "No Response."

As can be seen in Appendix A, these questions were introduced with a transition phrase, "Now I would like to ask you a couple of questions about home repair." This was followed by a question on home ownership and then either Version 1 or 2 as shown above. This split-ballot provides data to evaluate the reliability of the question phrasings and to compare response patterns.

Next, if the respondent indicated that either major or minor repairs were required they were asked to provide some specific details. This aspect of the survey provided data which contributed to the analysis of the validity of the need for repair questions in the sense that verbatim descriptions could be compared to the rating on dwelling's condition. Up to three descriptions of actual repairs required were collected using the following question.

IF MAJOR OR MINOR REPAIRS:

"Could you please describe the repairs it needs"

- WRITE DOWN EVERYTHING THE RESPONDENT SAYS -

- GET DETAIL. IF THEY SAY "ROOF" DOES THAT MEAN REPLACING A FEW SHINGLES OR THE WHOLE ROOF?

_____

_____

_____

- PROBE BEFORE MOVING ON

"Is there anything else?"

The need for repair questions were asked in the context of the "Manitoba Omnibus Survey." This is a shared survey in which multiple clients purchase questions. The need for repair questions were preceded by questions relating to political and economic conditions, and then were followed by a set of background statistical questions as shown in Appendix B.[7]

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[7] The political and economic questions are confidential to the clients who funded the items.

This particular version of the Manitoba Omnibus was a telephone survey of 1023 Manitobans. Telephone numbers are selected using random digit dialing[8] and all interviewing is undertaken by trained interviewers. The field operations which included the generic need for repair questions were conducted in early February, 1988 over a period of five evenings. In Section 3.4, some special issues relating to data analysis are reviewed.

Winnipeg Survey

A second survey was conducted in March of 1988. This survey had three objectives:

- to compare response patterns produced by the 1981 Census and 1982 HFE question wordings;
- to provide information to compare dwelling unit ratings by the respondent with their descriptions of repairs required;
- to enrol a sub-sample of respondents in an inspection of their dwelling units.

Appendix B shows the questionnaire for this survey in its entirety, with the two versions used to evaluate the response order effects of the alternate phrasings. Slight modifications were introduced in the specific phrasings used in the Census and HFE surveys to ensure that the questions would work over the telephone. Split-ballot techniques were employed and unlike the previous Manitoba survey, the entire survey focussed on the need for repair issues. That is, no other clients were included in this survey. An abbreviated set of background questions were used for statistical purposes.

One rationale for undertaking a second survey was that a sample of fifty homes was required for physical inspection. It was important to ensure an adequate number of respondents were obtained who rated their dwelling as needing either major or minor repairs and who would agree to an inspection of their home. To contain costs, only physical inspections in Winnipeg could be contemplated. Based on the results of the 1981 Census and 1982 HFE, we projected that about 20% of respondents would indicate a need for major or minor repair. Further, based on other

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8 Random digit dialing involves a systematic random sample of telephone numbers from the printed directory. The last three digits are then dropped and randomly replaced. This produces a new list which includes unlisted and unpublished numbers, as well as a relatively large proportion of non-working numbers. Because the initial systematic sample did not include businesses, the resulting sample tends to be concentrated on residential exchanges, compensating for the higher number of non-working numbers. About 40% of numbers generated in this fashion are valid residential connections.

enrollments done in the last year, it was likely that only fifty percent would agree to the inspection. Therefore, the urban sample of approximately 550 from the first survey of 1023 Manitobans would be insufficient to ensure a successful program of physical inspections.

Physical Inspections

During the second, or Winnipeg survey, respondents were enrolled in the physical inspection phase. Since we felt that individuals would be sensitive to agreeing to an inspection over the phone, our first step was to invite those who had replied that their home was in need of major or minor repair, to receive additional information about the research. The need to approach the enrollment carefully is dictated by the normal concerns that respondents might have about strangers entering their home. Some (most likely tenants) who felt their units were in need of repair might be very responsive if they felt that pressure could be brought to bear on landlords. However, homeowners who reported a need for repair might be reluctant to reveal any problems (or poverty) and so might refuse entry.

About 76% of all respondents agreed to receive information on the project and we sent a letter explaining the research and requesting their assistance (See Appendix C). This letter was designed in consultation with CMHC and outlined the nature of the research. A subsequent telephone call enrolled the respondent into the inspection phase and an appointment was scheduled. Inspections were conducted by DSI Tandem Coop Resources, a Winnipeg development and property management firm.

During the telephone survey respondents who rented property were asked to identify the owner of the dwelling units. For those who could not, we attempted to track down the owner through the telephone directory and tax records. For all identified landlords, we sent another letter explaining the research and inviting them to contact us if they had any questions. Seven landlords did contact us, and three requested us not to inspect the unit. We deferred to these requests.

In all, 198 respondents to the second telephone survey (Winnipeg) agreed to receive additional information on the research. Of these, 57 were eventually scheduled for an inspection. This final figure reflects difficulty in recontacting respondents, as well as those who did not wish to have a physical inspection. Seven of those who agreed to have their homes inspected either withdrew their agreement or failed to meet the inspector.

Inspectors who were familiar with building standards employed a comprehensive recording form to identify specific repairs. This form, developed in consultation with CMHC staff, is presented in Appendix D. A

summary of the results was provided to the respondent, and landlord where relevant.

3.4 Issues in Data Analysis

Before presenting the results of the two surveys and the physical inspections it is important to explain two analysis issues:

Weighting

As outlined in the review of 1982 HFE survey, it is necessary to weigh the sample data to represent the population. Sample data can deviate from the population for two reasons. First the researcher may purposely construct a sampling design which over- or under-represents attributes of the population. The research may call for certain groups to be adequately represented and a simple random sample may fail to produce this. The researcher may wish to increase the precision of statistical estimation (increase the efficiency). Stratified sampling is used to accomplish this when a specific statistic is required (e.g., the percentage of unemployed).

Weighting is also undertaken when a sample, because of chance, deviates significantly from the population. For example, it is not unusual for the gender ratio in a telephone survey not to reflect the true population ratio. Other attributes of the sample may also deviate from the true population values.[9]

Weighting to revise a stratified sample is usually much more complex than the weighting used to adjust a simple random sample with attributes that deviate from the population parameters. Each stratification strategy will produce a unique weighting procedure.

Weighting a simple random sample must be confined to the data collected on household and respondent attributes (age, income, etc.) and not on the substantive questions for the survey (e.g., need for repair).

In the weighting we employed (adjusting a simple random sample), the first task was to establish which sample attributes did not conform to

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9 These deviations may be the result of method or simply because of the random sampling process. For example, in the two telephone surveys, no special techniques were used to screen respondents except to ensure he or she was over 18. Experience with over 50 similar surveys has typically produced 60% women and 40% men on any given survey (possibly because in most households women answer the phone more frequently than men, and because men tend to refuse to participate in surveys more often than women). It is possible to obtain the correct gender ratio by selecting respondents whose birthday is next, or through other more complex procedures. These selection procedures tend to increase refusals and raise costs.

population parameters. Initial frequency tabulations produce proportions of the sample in certain income, gender and age groups. For this research, ownership status of the dwelling unit was also evaluated. These sample attributes are then compared to secondary sources. Age, gender and home ownership status from the sample surveys were compared to 1986 Census data for Manitoba (Survey 1) and Winnipeg (Survey 2), while income data were compared to 1985 Revenue Canada data for both surveys.

Discrepancies between the sample and secondary data were noted and simple correction factors computed. For example, if the sample has 40% men when the 1986 Census data indicated that 49% was the population average, then the sample data for each male was adjusted up by 1.225 (49/40). Similarly, the sample data for each woman would be adjusted down by .85 (51/60). This was undertaken sequentially for each of the four variables: income, gender, age and tenure.

There are several important issues relating to weighting. First, if the sample data deviate significantly (a common rule of thumb is 20%) from the population values, weighting can produce distortion. This is especially the case if the under-represented category is small. For example, in a general population survey of 500, if only 50 are men, to weigh this small sample runs the risk of distorting the analysis.

It is important to undertake hypothesis testing before and after weighting to determine whether the weighting makes a difference in any statistical evaluations. If that is the case, then any correlations or tests of independence may be quite weak.

Finally, weighting depends on which variables in the sample data can be compared to secondary sources. There may well be dimensions of the sample data which cannot be compared to secondary sources and there is always the possibility that the sample is distorted in ways which cannot be determined because insufficient background information was obtained.[10]

Validity

We used two methods for assessing the validity of occupant ratings of dwelling condition.

First, we asked all respondents on both surveys who reported that their home needed minor or major repairs to provide additional descriptions of the required repairs. Up to three descriptions were recorded verbatim. The analysis task requires comparison of these descriptions with the rating to determine whether respondents accurately evaluated the condition of their home on the specific need for repair question. The descriptions of needed repairs are varied and specific to

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10 The specific weighting procedure is an option in the SAS procedure PROC FREQ. Each of the four dimensions was weighted and checked against the secondary sources to ensure that the revised data conformed to Census or Revenue Canada information.

each respondent. Clearly, the qualitative verbatim information must be transformed to allow comparison with the three categories (regular maintenance, minor or major repair).

To perform this comparison, we classified the descriptions of the needed repairs into ten general categories (e.g., exterior structural, foundation, plumbing, etc.).[11] Then, with each repair, a "severity code" was assigned based on a judgement of how serious the repair was. For example, the replacement of a few shingles is not serious, but replacement of a rotting roof is. This procedure transformed the descriptions into a nominal variable which could be compared with the occupant response to the need for repair question.

In the statistical testing the repair classifications were reduced to from ten to a four point scale to increase the power of the test.[12]

There are some clear limitations to this method of testing the questions validity:

- The consistency of recording descriptions depends on the interviewer probing and willingness to record detail. All interviewers were thoroughly trained in how to record the information and were instructed to probe, especially when respondents who indicated a need for repair beyond regular maintenance failed to provide additional information.

- The scaling and classification of severity may also be distorted. Two data coders, one of whom was very familiar with home repairs, classified the nature of the repair and then set the level of severity. This coding was done in tandem and with considerable review and discussion to ensure consistency.

- Any transformation which reduces the number of categories of severity (from 10 to 4) loses information and may introduce additional biases.

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11 Repair categories were derived by reviewing the verbatim responses provided by respondents. The fact that ten classifications emerged is not significant.

12 Cross-classification and contingency table analysis such as the Chi-Square test lose power as the sample size in the cells of the table is reduced. Collapsing the size the table (reducing the number of classifications) increases the power of the test by ensuring adequate sample sizes in the cells of the table, but this also discards information (detailed classifications). For any data set there is an optimum point where further table collapsing compromises the statistical testing because too much information has been eliminated. For nominal data (such as our classifications on need for repair) setting this optimum is largely a matter of judgment.

- It would have been desirable to also collect required repair descriptions from occupants who cited the need for regular maintenance. The scope of the research precluded undertaking this additional data collection.

Despite these qualifications, the use of severity codes for required repairs provides a viable method for assessing whether occupants accurately classified the condition of their home. Of particular interest is whether they over-classified (described repairs which indicated a lesser need for repair than their overall rating indicated), or under-classified (described repairs which indicated a greater need for repair than their overall rating).

The second approach to validity assessment was to inspect the dwellings of fifty respondents and compare these evaluations with the occupants' own ratings. Again the basic object is to compare the occupant ratings with the rating provided by an independent trained observer.

The selection process for the particular units to be inspected encountered some difficulties which may bias the results.[13] As mentioned above, respondents may or may not be reluctant to have their homes inspected. Because some landlords objected to the inspection, and because there is sensitivity about inspection properties not owned by the occupant, more units which were owner-occupied were included in this inspection. Finally, although the sample of fifty is too low to permit statistical testing, the information is consistent and very interesting. The scope of the project limited the number of units which could be inspected.

Summary on Data Analysis Issues

Two important issues in the analysis of the data are the weighting procedures used to correct for sampling bias and, the procedures used to generate information to be used in the assessment of validity. The weighting procedures are common to all survey research and both surveys were weighted along four dimensions (income, gender, age and home ownership status). The information on actual housing conditions (both the descriptions of needed repairs and the actual inspections) involve degrees of judgement. Considerable effort was taken to ensure that these judgments were balanced.

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[13] Selection process includes enrollment on the telephone survey, letter contact, phone follow-up and final in-person contact by the inspector.

4.0 THE ASSESSMENT OF QUESTION RELIABILITY

The first issue is to determine whether the different question phrasings produce varying response patterns. Our first step was to conduct a telephone survey of 1023 Manitobans using a generic question (i.e., a hybrid of the 1981 Census and 1982 HFE question on the need for repair).[14] For reference these questions are reproduced below.

Version 1 (CENSUS, order for response categories)	"Not including remodelling, additions, conversions, or energy improvements, would you say your home is in need of regular maintenance, minor repair or major repair." (DO NOT OFFER ANY DEFINITIONS)
Version 2 (HFE, order for response categories)	"Not including remodelling, additions, conversions, or energy improvements, would you say your home is in need of major repair, minor repair, or only regular maintenance." (DO NOT OFFER ANY DEFINITIONS)[15]

TABLE 3

RESULTS OF THE GENERIC QUESTION ON NEED FOR REPAIR COMPARED TO THE 1981 CENSUS AND 1982 HFE QUESTION RESULTS (SPLIT BALLOT EXPERIMENT)

(Manitoba Survey)
(Percent)

REPAIRS	VERSION 1 (CENSUS)		VERSION 2	(HFE)
Major	8.0	6.9	7.7	12.7
Minor	16.9	18.3	24.3	15.3
Regular Maintenance	75.1	74.8	68.0	72.0

Note: HFE and Census data are for Manitoba and 1982 and 1981 respectively and therefore differ from Table 1.

---

14 The allocated sample sizes are 504 for Version 1 and 519 for Version 2. Weighting produced sample sizes of 460 and 462 respectively.

15 Statements in capitals are interviewer instructions and are not read over the phone.

Table 3 compares the results for Manitoba from the 1981 Census, and 1982 HFE with those from the first survey which tested the generic questions. It is apparent that the generic versions, in which only response order varies, produce differences in response patterns. It must be kept in mind when comparing the Manitoba survey results to the 1981 Census and 1982 HFE repair data that it is not completely appropriate to compare survey results in 1988 with research seven years earlier. Nevertheless, there is similarity in the general response patterns produced by both generic versions and the 1981 Census. Version 1, which has the same response order as the 1981 Census question produces a comparable pattern to that produced by the 1981 Census. Version 2, which has the same response order as the 1982 HFE, produces somewhat similar estimates of the proportion of major repairs as both Version 1 and the 1981 Census question. The 1982 HFE question differs from all three in that a larger proportion of respondents are recorded as having dwellings in need of major repair and correspondingly fewer dwellings in need of minor repair.

The second test for reliability used a Winnipeg survey of 1130 randomly selected respondents. In this survey, two questions which were close to the 1981 Census and 1982 HFE were administered in a split ballot test. The results from this survey are presented below in Table 4.

TABLE 4

NEED FOR REPAIR
(Winnipeg Survey)
(Percent)

	QUESTION VERSION	
NEED FOR REPAIR	1(CENSUS)	2(HFE)
Major	6.9	5.4
Minor	17.2	19.1
Regular Maintenance	75.9	75.5

There is no statistically significant difference between the two question versions.[16] Therefore, there is no difference in the response pattern for the two question versions used on the second survey.

---

16 (Chi-Square = 6.3 and P=.179)

Tests for Reliability: Summary

When unified by a common methodology (telephone interviewing) and when additional instructions and clarifications are provided in the context of the question (the generic question of the Manitoba survey provided no information on what constituted a major or minor repair) the response patterns for the two questions are essentially identical. The reason may be that the questions in the second survey provide respondents with more guidance which outweighs the minor response order effects noted in the first test using "generic" questions.

Therefore observed discrepancies in occupant ratings of dwelling condition are probably not related to question phrasing variations. More precisely, the differences in response pattern observed on the 1981 Census and 1982 HFE surveys are probably not due to differences in question phrasing. The two question versions are sufficiently close to produce essentially the same measure of dwelling condition in the context of a telephone interview.

The question remains whether the questions performed differently in the context of a self-administered survey such as the Census, or an interviewer administered survey such as the HFE. This research does not shed light on that question.

5.0 ASSESSMENT OF VALIDITY

Having established that the two question versions produce essentially the same response patterns, it remains to determine the accuracy (validity) of occupant ratings of dwelling condition. As explained above we tested this in two ways:

- on both the Manitoba Omnibus (Generic question test) and the Winnipeg survey (direct comparison of the 1981 Census and 1982 HFE need for repair question phrasings), we asked supplementary information on the required repairs. As explained above (Sections 3.4 and 3.5), these verbatim descriptions were re-coded into a four point nominal indicator of severity of repair. While up to three repairs were recorded in constructing this severity code, we used the first mentioned repair as indicative of the most important repair.[17]

- fifty dwellings were inspected, rated by a qualified observer and these independent ratings were then compared with the occupant ratings.

---

[17] It is a common working assumption of survey research that on open-ended lists respondents mentioned the most important item or issue first. In the absence of any systematic research, selecting the first mentioned description is a simple and consistent rule.

5.1. Analysis of Occupant Description of Required Repairs

Since, we have established that the two question phrasings perform equivalently within the context of a telephone interview, it is more pertinent to examine the relationship between the "pooled" responses for the questions and the severity code for required repairs. This analysis presents the results from the Winnipeg survey only.[18]

The categories of repairs first mentioned by those respondents who reported the need for a major or minor repair are shown below.

TABLE 5

CATEGORIES OF REPORTED REPAIR
(Winnipeg Survey)

(RESPONDENTS CITING "MAJOR" OR "MINOR" REPAIRS)
(Percent)

Paint/Plaster	14.1
Windows/Doors	8.5
Electrical	5.4
Plumbing	5.3
Foundation	6.0
Roof/Eaves	15.1
Replace Fixtures	4.7
Exterior Structural	7.0
Interior Structural	29.0
Heating	4.5
	100.0
	n=266

Before pooling the response patterns from the two questions it is useful to examine the relationship between our assigned severity code for repairs and the response patterns for each question version. This appears in Table 6 below. Note that a code of "0" was assigned to all respondents who reported their home required only regular maintenance.

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[18] Results obtained by pooling the results from the generic question are similar.

TABLE 6

QUESTION VERSION AND SEVERITY CODE
(Percent)

NEED FOR REPAIR QUESTION VERSION	ASSIGNED SEVERITY CODE Increased Need for Repair ------> 0	1	2	3
1. (Census)	79.1	4.8	10.7	5.4
2. (HFE)	78.5	1.8	14.9	4.8

n = 1156[19]

Rows sum to 100%

This table does show some differences between our severity code assignment and the question version. Tests for independence indicate that there is a statistically significant difference between the severity codes associated with the two question versions. However, this should not be interpreted as statistically significant since the Chi-Square inflates with sample size.[20]

The differences between the question versions are concentrated on severity codes of 1 and 2 not 0 and 3. This suggests that the coding of repair severity may be subject to errors in interpretation and execution. Also, there is an implicit assumption that the gradation between major repair, minor repair and regular maintenance is linear and arithmetic as implied by a severity code which is assigned from 0 to 10 and then re-coded into four classifications to simplify the analysis. Therefore, we proceed with pooling the results of both questions to compare directly the occupant rating of the home in response to the need for repair question and our classification of the severity of repair based on their subsequent descriptions.

The relationship between Need for Repair and Severity Code is shown in Table 7.

---

19 The total sample size deviates from the cited 1180 because of refusals and item non-response.

20 The Chi-Square value for this table is 11.993 which has a P value of .007. Cramer's V which corrects the Chi-Square for sample size has a value of .102 which is quite low.

TABLE 7

NEED FOR REPAIR AND REPORTED SEVERITY
(Percent)

NEED FOR REPAIR QUESTION	ASSIGNED SEVERITY CODE Increased Need for Repair ------> 0	1	2	3
Major	3.8	6.6	38.1	51.4
Minor	5.6	18.0	64.7	11.7
Regular	100.0	0	0	0

n = 1152[21]
Rows sum to 100%
3 respondents did not know or refused

There is a highly significant relationship between need for repair as indicated by the response to questions and the first mentioned repair as grouped into the severity codes.[22] This suggests that the general validity of the questions is high, in that the occupant rating of the dwelling condition as a result of the specific questions (either Census or HFE versions) corresponds to the severity of their first mentioned example of a repair required in the home.

It is also possible to explore the relationship between question responses and repair severity by developing the concept of misclassification. We define an over-classification as a respondent who indicated the need for a major repair, when the example they provided was either regular maintenance or a minor repair (severity of 0, 1 or 2). By contrast, an under-classification occurred when a respondent indicated an overall need for minor repair, but their example was grouped as a severity of 3.

Table 8 shows the numbers of respondents corresponding to the percentages in Table 7 above. Note that we have deleted the last row where the bulk of respondents (about 78 - 79%) were located.

---

21 See Footnote 19.

22 The Chi-Square for the entire Table is over 1200 and for the 2 x 4 table formed by excluding the last row (Regular Maintenance) drops to 45.3 which remains statistically significant.

TABLE 8

NUMBERS OF RESPONDENTS WHO REPORTED
THE NEED FOR MAJOR OR MINOR REPAIRS AND
WHO PROVIDE ONE EXAMPLE OF A REQUIRED REPAIR
(Numbers)

NEED FOR REPAIR	ASSIGNED SEVERITY CODE Increased Need for Repair ------>			
	0	1	2	3
Major	**3**	**5**	**28**	37
Minor	11	33	120	**22**

n = 259

Based on the definitions above, 13.9% over-classified their homes (36 out of 259). These individuals are shown in bold in the first row of Table 8. Correspondingly, 8.5% under-classified their homes (22 out of 259). The total percentage of misclassifications is therefore 22.4%.

This misclassification is potentially an important distortion in the accuracy of the occupant ratings of their dwelling. What cannot be determined from this research is how the misclassifications relate to background socio-economic variables. There are insufficient data to test hypotheses relating to respondent attributes (e.g., education) or dwelling attributes (e.g., age of dwelling, location, value range, etc.) However, a misclassification rate of about 1/5 appears reasonable for this type of question.

One further test was conducted to explore the relationship between respondent described repairs and their overall evaluation of their dwelling condition. The use of a "first mention" as an indicator of repair requirements assumes that the most important repair will be mentioned at the outset. This may not be the case. Therefore, a new variable was created which indicated the number of discrete repairs mentioned by the respondent. Recall that three such descriptions were collected on the survey. Table 9 shows the cross-classification of the total number of mentions with indicated need for repair. There is some relationship, but it is only marginally significant.[23]

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23 This table has a Chi-Square value of 6.4 and 2 degrees of freedom for a P value of .043.

TABLE 9

NUMBERS OF REPAIRS BY NEED FOR REPAIR
(Percent)

NEED FOR REPAIR	NUMBERS OF REPAIRS MENTIONED		
	1	2	3
Major	39.6	39.3	21.1
Minor	54.4	34.2	11.4

Summary

The use of additional respondent descriptions of the required repairs to check the ratings of the dwelling indicates that there is some misclassification. About one fifth of all respondents either over or under rated the condition of their dwelling units. There is only a weak relationship between the number of repairs cited and the rated condition of the home. The next test used independent observers to evaluate the condition of 50 homes.

5.2 Physical Inspections

The final phase of this research involved the inspection of the homes of a sub-sample of the households who responded that their dwellings were in need of major or minor repair. During the telephone interview respondents who qualified were asked if they wished further information on the research. Those who agreed were asked for their address and sent a letter inviting them to participate further by allowing a physical inspection of their home. Landlords were identified through the telephone directory, property tax records or from the respondent (if known). Qualified respondents were then approached in a second interview to schedule an inspection. As the time of the telephone survey some 198 households agreed to receive more information on the research. These households were sent a letter requesting their assistance by having their houses inspected (see Appendix C for sample letters). Some 57 dwellings were eventually inspected - 7 inspections could not be completed because respondents were not home or had changed their minds about participating in the survey.

The inspection instrument (Appendix D) was adopted from one previously used by CMHC for the RRAP evaluation and the National Housing Study. It provides basic information on the dwelling unit - unit type, number of stories, and type of basement/foundation. It also provides a summary assessment of key building components of the exterior of the building, the interior, and mechanical systems. Finally, it provides a rating by the inspector of the overall condition of the home and its

classification according to the need for repairs (major or minor) or regular maintenance. The individual building components were assessed on a 7 point scale with 1 indicating the need for replacement and 7 indicating top condition. The inspector was encouraged to provide additional comments on each component. The inspector was not advised as to the respondent's assessment of the unit.[24]

The following analysis compares the ratings of the respondents (reported condition) with that of the inspection (observed condition).The inspection were distributed as shown in Table 10. Recall that these are Winnipeg dwellings obtained in the second survey.

TABLE 10

DISTRIBUTION OF INSPECTIONS BY QUESTION VERSION AND TENURE

(Winnipeg Survey)
Numbers of Inspections

	VERSION 1 (CENSUS)	VERSION 2 (HFE)	TOTAL
OWNERS	21	17	38
RENTERS	5	7	12
TOTAL	26	24	50
NOT COMPLETED	6	1	7
TOTAL	32	25	57

Considerable effort was made to increase the number of inspections completed within the time frame available for this research, especially those of rented units. Complications included evening and weekend inspections for households not available during usual working hours (and the scheduling limitations which resulted) and obtaining landlord approval for the rental units prior to their inspection.

Special care was taken with rented units. A separate letter was sent to each landlord which could be identified. This letter was for information purposes and in theory could not prevent an inspection. In consultation with the client it was decided to proceed carefully and not

---

24 The inspections were carried out by individuals fully familiar with current CMHC construction standards. As a land development company, DSI Tandem Coop Resources Ltd. develops new properties and has constructed several cooperative housing units in the past year. The inspection work was supervised by Mr. Harry Haid a practicing architect in Winnipeg and Mr. Karl Falk who served as regional economist for CMHC for several years. The actual inspections were conducted by DSI construction supervisors.

to inspect a unit if the landlord strongly objected. The identification of landlords was attempted by asking responding tenants their landlords' name and address or correlating addresses with apartment house listings in the telephone directory. The difficulty identifying landlords was a major complication in securing actual inspections of rental units.

The research design limited the inspections to units for which the respondents indicated a requirement for major or minor repairs. An extension to this research would be to inspect homes of respondents indicating only a regular maintenance requirement to ensure that a significant level of misclassification does not exist for this group. It is unlikely that a respondent would classify a dwelling as needing regular maintenance when major repairs were actually required, unless the problem was hidden (e.g., dry rot).

The following table compares the occupant and inspectors ratings for both questions.

TABLE 11

AGGREGATE DISTRIBUTION OF INSPECTED UNITS
BY REPORTED AND OBSERVED CONDITIONS

(Percent)

DWELLING CONDITION	BOTH VERSIONS		VERSION 1(CENSUS)		VERSION 2(HFE)	
	REPORTED	OBSERVED	REPORTED	OBSERVED	REPORTED	OBSERVED
Major Repair	36.0	16.0	37.5	11.5	32.5	20.8
Minor Repair	64.0	30.0	62.5	34.6	68.0	25.0
Regular Maintenance	0.0*	54.0	0.0	53.8	0.0	54.2
TOTAL	100.0	100.0	100.0	99.9	100.0	100.0

Reported: As reported by respondent during telephone interview (Winnipeg Survey).
Observed: As reported by field inspector - adjusted for inspections which could not be completed.

* Since only respondents reporting a minor or major repair were included in the physical inspections, no houses reported as requiring only "regular maintenance" were inspected.

Neither version of the question resulted in an accurate indication of the condition of the housing units in the sample. In both cases, according to the inspectors, over half of the units required only regular

maintenance, although all respondents had reported that major or minor repairs were required. As well many units requiring minor repairs were classified by respondents in the major repair category resulting in a significant over-statement of the number of homes requiring major repairs; this over-statement was by a factor of 3.26 for Version 1 (37.5% divided by 11.55%) and 1.54 for Version 2 (32.0% divided by 20.8%) (2.19 overall).

The degree and direction of the misclassification problem were examined by comparing the indicated condition with the actual condition of each unit as determined by the field survey. The results are described in the following table.

TABLE 12

PER UNIT DISTRIBUTED OF INSPECTED UNITS
BY REPORTED AND OBSERVED CONDITION

(Percent)

REPORTED CONDITION	DISTRIBUTED BY OBSERVED CONDITION		
	MAJOR	MINOR	MAINTENANCE
BOTH VERSIONS			
Major Repairs Required	26.3	26.3	47.4
Minor Repairs Required	9.7	32.3	58.1
QUESTION VERSION 1(CENSUS)			
Major Repair Required	27.3	27.3	45.5
Minor Repair Required	0.0	40.0	60.0
QUESTION VERSION 2(HFE)			
Major Repair Required	25.0	25.0	50.0
Minor Repair Required	18.8	25.0	56.3

Reported: As reported by respondent during telephone interview (Winnipeg Survey).
Observed: As reported by field inspector - adjusted for inspections which could not be completed.

A significant misclassification problem is apparent for both questions. Some 72.8% of the units for which respondents indicated major repairs were required were misclassified under Version 1 (75% under Version 2). Of units for which respondents indicated minor repairs were required some 60% were misclassified under Version 1, and 75.1% were misclassified under version 2. The direction of the misclassification tended to be "upwards", that is, the reported condition tended to overstate the repairs required. However, it would be noted that under Version 2 19% of misclassified "minor repairs" units required major repairs - that is, they were misclassified "downward". This appeared not to occur in Version 1 but the sample size is small.

In aggregate some 74% of the units reported as requiring major repairs were misclassified as were some 68% of the units indicated as requiring minor repairs. Of the latter category, 9.7% required major repairs and 58.1% only regular maintenance.

The extent of the misclassification found in the actual inspection of dwellings is significant. However, the sample size (50) is small. As well, it is important to note that these are Winnipeg dwellings. The situation may be different in smaller urban areas and for rural dwellings. Indeed, because rural homeowners may be more accustomed to doing their own repairs, they may downplay the need for repair. Therefore, if urban and rural respondents were combined it is possible that provincial data would show a close conformity of opinion on the dwelling unit condition between inspector and occupant.

6.0 SUMMARY AND RECOMMENDATIONS

This research has investigated the impact of question phrasing on the response pattern with respect to the need for repair of a dwelling unit. Respondent evaluation of the condition of their dwelling unit was examined using split ballot techniques on two telephone surveys, verbatim descriptions of required repairs and actual physical inspections. With respect to the specific questions underlying this research the following are the major findings

6.1 Reliability

When only response order is varied in the context of a generic question there is a statistically significant difference between a version which proceeds from major repair to regular maintenance and one which reverses this order. However, when questions are tested which more closely parallel the wordings used on the 1981 Census and the 1982 HFE surveys, these differences disappear. The reason for this difference may be that the questions in the second survey provide respondents with more guidance which outweighs the minor response order effects noted on the first test using "generic" questions. Therefore, in the context of a telephone interview there is no difference in the response pattern produced by the 1981 Census question on needed for repair and the 1982 HFE survey.

6.2 Validity

Correlation of Respondent Ratings With Their Descriptions

There is a general correlation between the condition of the home as reported by the respondent and the repairs which they described as needed. This correlation is not surprising, but it is evident that there may be misclassifications. In general, respondents tended to misclassify upwards, in the sense that a home reported as needing "major repairs" only had minor repairs or routine maintenance.

Physical Condition and the Indicated Need for Repair

It was not possible to statistically evaluate the difference between question version, reported condition and the actual condition of the home due to sample size problems.[25] However, the misclassification of dwelling conditions by respondents appears greater when evaluated against independent observation. Many respondents over-stated the actual need for repair.

7.0 SUMMARY AND RECOMMENDATIONS

There are major conceptual issues underlying the use of self-reporting of dwelling unit condition.

First, the ability to report on the physical condition is probably not uniform among households. While large samples may submerge individual variations a problem exists if there are neighborhood and regional effects which complicate the estimation of housing conditions.

Second, the actual condition of the house and the ability to report on the condition may be related to education and income. Also, the actual condition of the house may tend to be related to education and income through a higher socio-economic status.

Third, and most important, discrepancies in response patterns can be expected to be obtained by different questions on surveys using different methodology and at different points in time. Unless these differences are controlled and eliminated, it is not possible to absolutely isolate the source of the differences. This research has demonstrated that the differences observed in the 1981 Census and 1982 HFE surveys with respect to the need for repair are most likely not due to question phrasing.

Fourth, since the two question versions tested failed to yield significantly different response patterns, the question as to which version is the most accurate is not relevant. Both versions appear to produce a rate of misclassification of between 22% (according to descriptions provided by the respondent) and 74% (according to independent inspections).

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25 This was never an expectation of the research given the small number of dwellings actually scheduled for inspection.

APPENDIX A

QUESTIONNAIRE FOR GENERIC TEST

APPENDIX B

QUESTIONNAIRE
EVALUATION OF CENSUS AND HFE VERSIONS

CALLBACK

DAY _____

TIME _____

GENDER _____

UNIVERSITY OF MANITOBA RESEARCH LTD.
SOCIAL SCIENCES DIVISION

HOME REPAIR

MARCH 1987

Interview Number _____

Interviewer Identification _____

First Contact 1

Callback 2

Telephone Number _____
(RECORD COMPLETE NUMBER)

Urban 1

Rural 2

1. **Do you rent or own the home you live in?**

RENT 1

OWN 2

OTHER 3

DON'T KNOW 8

NO RESPONSE 9

VERSION 1

2. We would like to find out about the extent of repair needed around your home.

Is your dwelling in need of any repairs? Please do not include desirable remodelling or additions. Would you say...

No, only regular maintenance is needed, this includes such things as painting and furnace cleaning 1

OR

Yes, minor repairs are needed, this includes items like missing or loose floor tiles, bricks or shingles, defective steps, railing or siding 2

OR

Yes, major repairs are needed, this includes such items as defective plumbing or electrical wiring, structural repairs to walls, floors or ceilings 3

3. IF MAJOR OR MINOR REPAIRS:

Could you please describe the repairs it needs.

- WRITE DOWN EVERYTHING THE RESPONDENT SAYS -

- GET DETAIL: IF THEY SAY "ROOF". DOES THAT MEAN REPLACING A FEW SHINGLES OR THE WHOLE ROOF? -

NOT APPLICABLE 77

_____

_____

_____

- PROBE BEFORE MOVING ON:

Is there anything else?

VERSION 2

2. We would like to find out about the extent of repair needed around your home.

   Is your dwelling in need of any repairs? Do not include desirable remodelling, additions, conversions or energy improvements. Would you say...

   Yes, major repairs are needed, to correct for example corroded pipes, damaged electrical wiring, sagging floors, bulging walls, damp walls and ceilings, crumbling foundation, rotting porches and steps 1

   Yes, minor repairs are needed to correct for example small cracks in interior walls and ceilings, broken light fixtures and switches, leaking sinks, cracked or broken window pains, some missing shingles or siding, some peeling paint 2

   No, only regular maintenance is needed for example, painting, leaking faucets, clogged gutters or eavestroughs.3

3. **IF MAJOR OR MINOR REPAIRS:**

   Could you please describe the repairs it needs.

   - **WRITE DOWN EVERYTHING THE RESPONDENT SAYS -**

   - **GET DETAIL: IF THEY SAY "ROOF". DOES THAT MEAN REPLACING A FEW SHINGLES OR THE WHOLE ROOF? -**

NOT APPLICABLE 77

_____

_____

_____

- **PROBE BEFORE MOVING ON:**

  Is there anything else?

I would now like to ask you a few background questions. These questions are to ensure we have spoken to a representative group of Winnipeg residents.

4. How far have you gone in school? (DO NOT READ)

0 - 9 GRADE SCHOOL 1

10-11 SOME HIGH SCHOOL 2

12 HIGH SCHOOL 3

OTHER POST HIGH SCHOOL 4

SOME UNIVERSITY/COLLEGE 5

UNIVERSITY GRADUATE 6

GRADUATE/PROFESSIONAL SCHOOL 7

DON'T KNOW 8

NO RESPONSE 9

5. In what year were you born? ..... _____

NO RESPONSE 9999

6. How many people age 5 and under normally live in your household?

_____

7. How many people between 6 and 17 normally live in your household?

_____

8. How many people 18 and over (including yourself) normally live in your household?

_____

9. Please tell me the first three characters of your Postal Code:

_____

10. Finally, I am now going to mention a number of broad income categories. When I come to the category which best describes your total FAMILY income, please stop me.

UNDER $10,000 1

$10,000 - $20,000 2

$20,000 - $35,000 3

$35,000 - $50,000 4

OVER $50,000 5

DON'T KNOW 8

NO RESPONSE 9

THANK YOU FOR YOUR HELP. GOOD EVENING.

Gender: FEMALE 1

MALE 2

APPENDIX C

LETTERS

LETTER TO HOMEOWNERS/RENTERS

Dear Sir/Madam:

University of Manitoba Research Ltd. (UMR Ltd.) is conducting research on behalf of the Canada Mortgage and Housing Corporation (CMHC) to test various questions for collecting information on the physical condition of dwellings in Canada so that an accurate picture of housing conditions can be developed.

As a part of this study, you were contacted by telephone last week by University of Manitoba Research Ltd. and asked to answer a variety of questions about the condition of your home. At this time, you indicated that your present dwelling is in need of either minor or major repairs. We are interested in obtaining your cooperation for a short inspection of your house. This will allow us to evaluate how people describe their houses with the actual condition of the home.

An interviewer from UMR will call you within the next week to arrange an appointment, at your convenience, for this inspection. The inspection will be conducted for UMR by fully trained staff from DSI Tandem Co-op Resources Ltd., a technical resource group which assists non-profit and cooperative groups in the development of their projects. It is expected that the inspector will require about 10-15 minutes in your home. At the end of this time you will be provided with a summary of the inspection results. Although the inspection will not be exhaustive and may not identify all potential safety and health hazards, it never-the-less may be useful to you by identifying general areas requiring attention. The inspection is a critical part of this research project as it will provide the information necessary to evaluate the usefulness of the specific dwelling condition questions being tested. All inspections will be completely confidential and your identity will not be revealed.

Should you have any questions regarding this study or the inspections please call me at 474-9710, or Karl Falk of DSI at 943-6375.

By participating in this study you will greatly assist in the development of data on the physical condition of housing in Canada.

Thank you for your support in this important research project.

Yours truly,

Greg Mason
Director

LETTER TO LANDLORDS

Dear Sir/Madam:

University of Manitoba Research Ltd. (UMR Ltd.) is conducting research on behalf of the Canada Mortgage and Housing Corporation (CMHC) to test various questions for collecting information on the physical condition of dwellings in Canada so that an accurate picture of housing conditions can be developed.

As a part of this study one of your tenants, who was chosen by means of a scientific selection process, was contacted by telephone and asked some questions about the condition of their dwelling unit. This telephone contact has been followed up with a letter requesting that they consent to have a brief physical inspection of the dwelling unit conducted by DSI Tandem Resources Ltd., a technical resource group specializing in housing and commercial development and research.

Although this inspection will not be exhaustive, it never the less may be useful to you by indicating general areas requiring attention. Please note that the inspection will be visual only and will not involve any physical alterations to the unit. If you wish, a summary of the inspection results can be made available to you.

The inspection is a critical part of this research as it will provide the information necessary to evaluate the usefulness of the telephone survey questions answered by your tenant on dwelling unit condition. All inspections will be completely confidential and your identity, the identity of the dwelling unit and the identity of the tenant will not be revealed to anybody other than yourself and the tenant by University of Manitoba Research Ltd.

Should you have any questions regarding this study or the inspections or should you have any objections to this inspection being undertaken please call me at 474-9710 or Karl Falk of DSI Tandem Resources Ltd. at 943-6375.

By participating in this study you will greatly assist in the development of data on the physical condition of housing in Canada.

Thank you for your support in this important research project.

Yours truly,

Greg Mason
Director

APPENDIX D

INSPECTION INSTRUMENT

EVALUATION OF THE "NEED FOR REPAIR" QUESTION
ON THE 1991 CENSUS
TECHNICAL INSTRUMENT - FIELD SURVEY

RESPONDENT #

RESPONDENT TELEPHONE #

Name of property owner/landlord _____

_____

Address of property inspected _____

_____

Name of tenant (if applicable) _____

_____

Inspector Name _____

Branch _____

Date of Technical Review _____

Notes Section: (e.g. reason(s) for not being able to complete the Technical Review)

_____
_____
_____
_____

Start Time STTIME: _ _ : _ _ : _ _

Finish Time FINTIME: _ _ : _ _ : _ _

Is the building a: Circle one response only.

Single House - a single dwelling not attached to any other building surrounded on all sides by open space.....1

Semi-detached or double house - one of two dwellings attached side by side but not attached to any other building and surrounded on all other sides by open space.....2

Duplex - one of two dwellings, one above the other, not attached to any other building and surrounded on all sides by open space (assume all purpose built).....3

Row House - one of three or more dwellings jointed side by side but not having any other dwelling either above or below.....4

Apartment in a (purpose-built apartment)building that has less than five storeys - for example, an apartment in a triplex, quadruplex, four-storey walk-up, etc.....5

Other (please specify) -.....6

How many storeys are there above grade (foundation). Include ground floor. _____

Does this building have:

Basement.....1

Cellar space.....2

Crawl space.....3

Slab-on-grade.....4

Other (please specify).....5

EXTERIOR OF BUILDING PHYSICAL CONDITION

1. Provide a general rating of the condition of all exterior porches, balconies and other attached structures(e.g., in terms of evidence of hazards, unsoundness, deterioration, missing stairs, handrails, etc.)

1	2	3	4	5	6	7	NA 8
---	--	-:		+	++	+++	
(totally replace)						(top condition)	

Comments:

2. Provide a general rating of the structure of the exterior foundation walls or posts based on evidence of cracks, crumbling, holes, etc.

1	2	3	4	5	6	7	NA 8
---	--	-:		+	++	+++	
(attention needed)						(top condition)	

Comments:

3. Rate the condition of the surface (cladding) of the exterior walls (e.g., in terms of wear, paint condition, cracks, rotting wood, crumbling material, holes, etc.)

1	2	3	4	5	6	7	NA 8
---	--	-:		+	++	+++	
(total resurfacing needed)						(top condition)	

Comments:

4. Rate the structural soundness of the exterior walls on the basis of large cracks, setting, loose bricks, leaning, buckling, etc.).

1	2	3	4	5	6	7	NA 8
---	--	-:		+	++	+++	
(immediate major attention needed)						(top condition)	

Comments:

5. Based on the exterior visual inspection of the frame, sash, sills and glass, provide an overall rating of the condition of all doors and windows (consider evidence of broken glass, peeling paint, bare and rotting wood, cracks, etc. and their weatherproofness (Presence of weatherstripping, storm doors, tightness of fit).

1	2	3	4	5	6	7	NA 8
---	--	-:		+	++	+++	
(totally replace)						(top condition)	

Comments

6. Provide a general rating of the roof's surface condition on the basis of a visual examination of the sheathing and covering material (e.g. in terms of loose or missing material, damaged shingles).

1	2	3	4	5	6	7	8
---	--	-:		+	++	+++	NA
(totally resurface)						(top condition)	

Comments:

7. Rate the roof structure (excluding soffits and fascia) from an examination of the roof line (ridge) and shape (e.g.,in terms of sagging/ buckling/rot).

1	2	3	4	5	6	7	8
---	--	-:		+	++	+++	NA
(very unsound, replace)						(top condition)	

Comments:

8. On the basis of a visual examination, rate the condition of the flashing (e.g., in terms of evidence of waterproofness, wear, corrosion, etc.)

1	2	3	4	5	6	7	8
---	--	-:		+	++	+++	NA
(totally replace)						(top condition)	

Comments:

9. Provide a rating of the soffits and fascia and attic ventilation on the basis of a visual examination (e.g.,in terms of deterioration sagging, rotting, severe peeling of paint, missing pieces, ventilation, etc.)

1	2	3	4	5	6	7	8
---	--	-:		+	++	+++	NA
(totally replace)						(top condition)	

Comments:

10. Taking into account all aspects of the building exterior, how would you rate the overall condition of the dwelling's exterior? (Review this rating after the interior inspection is completed).

1	2	3	4	5	6	7	8
---	--	-:		+	++	+++	NA
(major attention required)						(top condition)	

Comments:

INTERIOR AND MECHANICAL SYSTEMS BASEMENTS

11. Rate the condition of the basement floor (excluding waterproofness) on the basis of evidence of cracks, buckling, deterioration material, etc. (If not a true basement, circle not applicable).

1	2	3	4	5	6	7	NA 8
---	--	-:		+	++	+++	
(totally replace)						(top condition)	

Comments:

12. Rate the structural condition of the interior foundation walls on the basis of evidence of cracks, crumbling, etc.)

1	2	3	4	5	6	7	NA 8
---	--	-:		+	++	+++	
(totally replace)						(top condition)	

Comments:

13. Rate the structural condition of the support posts/columns/joists and carrying beams on the basis of decay/rot, buckling, sagging, etc.

1	2	3	4	5	6	7	NA 8
---	--	-:		+	++	+++	
(totally replace)						(top condition)	

Comments:

14. Rate the waterproofness of the basement/cellar space/crawl space/etc. on the basis of evidence of moisture penetration and dampness (e.g. water marks, mildew, standing water).

1	2	3	4	5	6	7	NA 8
---	--	-:		+	++	+++	
(very wet)						(very dry)	

Comments:

15. On the basis of a visual inspection, rate the overall condition of the furnace in terms of operability (consider the fire pot, safety, leaks in damper, flue seals, etc.) and burner capacity. Record manufacturer's name and date.

1	2	3	4	5	6	7	NA 8
---	--	-:		+	++	+++	
(replacement needed)						(top condition)	

Comments:

16. Rate the overall condition of the heat distribution system (including ductwork, pipes, convectors, space heaters, radiators, registers electrical baseboards etc.).

1 2 3 4 5 6 7 NA
--- -- -: + ++ +++
(extremely poor) (top condition)

Comments:

17. Rate the condition of the (visible) wiring. Consider evidence of worn, damaged, frayed, broken or inoperative wiring in making your assessment. Note paper wrap, lumnex, rubber series.

1 2 3 4 5 6 7 NA
--- -- -: + ++ +++
(totally replace) (top condition)

Comments:

18. Rate the overall condition of the electrical system. Consider fire and safety factors as well as performance in making your assessment. Note: Panel box vs fuses.

1 2 3 4 5 6 7 NA
--- -- -: + ++ +++
(totally replace) (top condition)

Comments:

19. On the basis of an inspection of the pipes visible in the basement, rate the overall condition of the water pipes and water supply system (including waste and stack). Consider evidence of corrosion, leaks, deterioriation, etc., in making your rating. Note: Copper, galvanized.

1 2 3 4 5 6 7 NA
--- -- -: + ++ +++
(totally replace) (top condition)

Comments:

20. On the basis of an inspection of the pipes visible in the rest of the house, (or, the dwelling unit, if a multiple unit structure) rate the overall condition of the plumbing. Consider the presence of S or U joints in making your rating.

1 2 3 4 5 6 7 NA
--- -- -: + ++ +++
(totally replace) (top condition)

Comments:

UPPER FLOORS (Begin with ground floor) For multiple unit buildings, applies only to the unit being inspected.

21. Provide an <u>overall rating</u> of the dwelling unit <u>bathroom equipment</u> on the basis of its condition.

1	2	3	4	5	6	7	8
---	--	-:		+	++	+++	NA
(totally replaced)						(top condition)	

Comments:

22. On the basis of a visual inspection of the <u>surface</u> condition of the <u>floors</u>, for this dwelling unit provide a summary rating of the floors above the basement.

1	2	3	4	5	6	7	8
---	--	-:		+	++	+++	NA
(totally replaced)						(top condition)	

Comments:

23. On the basis of a visual inspection rate the <u>structural</u> soundness of the <u>floors above the basement</u> for this dwelling unit. Consider evidence such as movement, buckling, sloping sagging, loose jointing, etc. in making your decision.

1	2	3	4	5	6	7	8
---	--	-:		+	++	+++	NA
(totally replace)						(top condition)	

Comments:

24. On the basis of a visual inspection of all the <u>interior stairs</u> for this dwelling unit provide a general rating. Consider factors such as <u>structural and surface</u> conditions as they relate to safety, as well as the condition of the treads risers and balustrades in making your assessment.

1	2	3	4	5	6	7	8
---	--	-:		+	++	+++	NA
(totally replace)						(top condition)	

Comments:

25. On the basis of a visual inspection of the <u>interior wall and ceiling surface</u> of this dwelling unit provide a summary condition rating. Consider factors such as peeling paint/wallpaper, fallen plaster, sagging, holes, small cracks, bulging, leaning etc., in making your assessment.

1	2	3	4	5	6	7	NA 8
---	--	-!		+	++	+++	
(totally replace)						(top condition)	

Comments:

26. How many places in the dwelling unit reveal evidence of significant <u>water entry</u>? Consider evidence of moisture penetration such as water marks, dampness, mildew, etc.

None.....0

1 place.....1

2 or more places.....2

Comments:

27. On the basis of your inspection of interior <u>walls, ceilings, floors and stairs</u> of this dwelling unit, how would you rate this <u>overall condition</u> regarding <u>surface</u> consideration?

1	2	3	4	5	6	7	NA 8
---	--	-!		+	++	+++	
(totally replace)						(top condition).	

Comments:

28. On the basis of your inspection of interior <u>walls, ceilings, floors and stairs, windows and doors</u> of this dwelling unit, how would you rate their overall condition regarding <u>structural</u> consideration?

1	2	3	4	5	6	7	NA 8
---	--	-!		+	++	+++	
(totally replace)						(top condition)	

Comments:

SUMMARY RATINGS

29.
How would you rate the <u>overall condition</u> of this building on the basis of your inspection of the exterior and interior both structural and surface conditions?

1	2	3	4	5	6	7	NA 8
---	--	-!		+	++	+++	
(beyond repair, demolish)						(top condition)	

Comments:

30.
Is this dwelling unit in need of any "repairs"? Do not include desirable remodelling, additions, conversions or energy improvements. Select one category only by circling the number corresponding to the appropriate answer.

YES, MAJOR REPAIRS ARE NEEDED
(to correct, for example, corroded pipes, damaged electrical wiring, sagging floors, bulging walls, damp walls and ceilings, crumbling foundation, rotted porches and steps).....1

YES MINOR REPAIRS ARE NEEDED
(to correct, for example, small cracks in interior walls and ceilings, broken light fixture and switches, leaking sink, cracked or broken window panes, some missing shingles or siding some peeling paint).....2

NO, ONLY REGULAR MAINTENANCE IS NEEDED
(for example, painting, leaking faucets, clogged gutters or eavestrough).....3

Comments: